

## CLAIMS

I claim:

1. A communication system for use in a communication network comprising
  - A PDH/SDH/SONET input/output unit which inputs and outputs PDH/SDH/SONET data
  - An Ethernet input/output unit which inputs and outputs Ethernet data
  - A multiplexer/demultiplexer which time division multiplexes and demultiplexes the PDH/SDH/SONET and Ethernet data
  - A transceiver unit for processing, and sending and receiving the multiplexed PDH/SDH/SONET and Ethernet data
2. The communication system of claim 1 wherein a line interface unit is used as the PDH/SDH/SONET input/output unit for input and output of PDH/SDH/SONET data.
3. The communication system of claim 1 wherein an Ethernet media access controller or Ethernet transceiver is used as the Ethernet input/output unit for input and output of Ethernet data.
4. The communication system of claim 1 wherein the PDH/SDH/SONET and Ethernet data are time division multiplexed prior to encoding, and demultiplexed after decoding.
5. The communication system of claim 1 wherein the PDH/SDH/SONET and Ethernet data are encoded prior to time division multiplexing, and demultiplexed prior to decoding.

6. The communication system of claim 1 wherein the same or separate encoder(s)/decoder(s) are used to encode and decode PDH/SDH/SONET and Ethernet data.
7. The communication system of claim 1 wherein a serializer/deserializer is used to serialize and deserialize the multiplexed PDH/SDH/SONET and Ethernet data.
8. The communication system of claim 1 wherein a transceiver is used to send and receive the multiplexed PDH/SDH/SONET and Ethernet data.
9. A method for distinguishing between PDH/SDH/SONET and Ethernet data in a communication system comprising adding different framing bit or bits to the PDH/SDH/SONET and Ethernet data prior to multiplexing, and removing the framing bit or bits after demultiplexing.
10. A method for distinguishing between the PDH/SDH/SONET and Ethernet data in a communication system comprising inserting one or more special character(s) between the PDH/SDH/SONET and Ethernet data during multiplexing, and removing the special character(s) during demultiplexing.
11. A method for distinguishing between PDH/SDH/SONET and Ethernet data in a communication system comprising encoding the PDH/SDH/SONET and Ethernet data into separate code spaces, that is, different combinations of ones and zeros.
12. The communication system of claim 1 acting as a standalone system or being incorporated into other network systems.